78011

Cruise Report

R/V Westward -- W-39 -- leg 4

Geophysics (piggyback) with Sailing Education Association

South Carolina and Southern New England Continental Shelf

Charleston, SC - Woods Hole, MA

May 14-24, 1978

Chief Scientist: Arthur G. Gaines, Jr., SEA

U.S.G.S. Scientist: Charles E. McClennen, Colgate University

Other Scientific Party

Wallace C. Stark	Captain	SEA
Stephen Bekowitz	Scientist	SEA
Anne Brearley	Scientist	SEA
Carol Reinisch	Scientist	SEA

plus 24 SEA student apprentices

Purpose of Cruise

While the cruise had many educational and research purposes that related to the U.S.G.S. consisted of side scan sonar and high resolution seismic reflection surveys of a west to east transect across the South Carolina shelf off of Charleston and a more extensive survey of the "mud patch" on the South New England shelf.

Navigation

Loran A and C were both used depending on up and down states of the two systems.

Equipment Used (all U.S.G.S.)

ORE Side Scan, 250' cable

EPC 3200 recorder

Raytheon 7 kHz and 1200 kHz transducers

Raytheon PTR 106 and 719 recorder

Other Tabulated Information

(a) 11 days at sea (4 days spent partly on piggyback USGS effort)

(b) 368 km of side scan sonar and sub-bottom profiling (see attached track chart)

(c) the following is an excerpt (p. 17 and 18) from the "Sea Draft Copy" of the Cruise Report of W-39 Scientific Activities, produced by SEA, Woods Hole, MA, April 12-May 24, 1978, 85 p.

Surficial Shelf Sediment Survey (Dr. Charles McClennen, Colgate University)

...A preliminary run was made across the shelf east of Charleston past the USGS buoy which marks a current meter, temperature probe, transmissometer, camera and pressure gauge tripod. The record from this transect (Figure 2) shows clearly layered channel fill and bars in Charleston Harbor and lineations of sediment type on the mid- and outer-shelf.

On the southern New England shelf the survey effort focused on (1) the midshelf portion of the "mud patch" (an anomalous region with over 20-30% silt and clay and as little as 5% sand); (2) a track around Block Island with special attention to topographic basins north of the islands; and (3) a transect of submerged glacial moraine between Point Judith and the Vineyard.

Midshelf records show clear alterations of mud and sand stringers where sand was over 70% by weight and suggested an absence of these features where silt and clay made up over 30% by weight (this corresponds to depths of about 30-35 fathoms).

A preliminary examination of orientation shows that the lineations are very diverse and not just parallel to the general bathymetric contours.

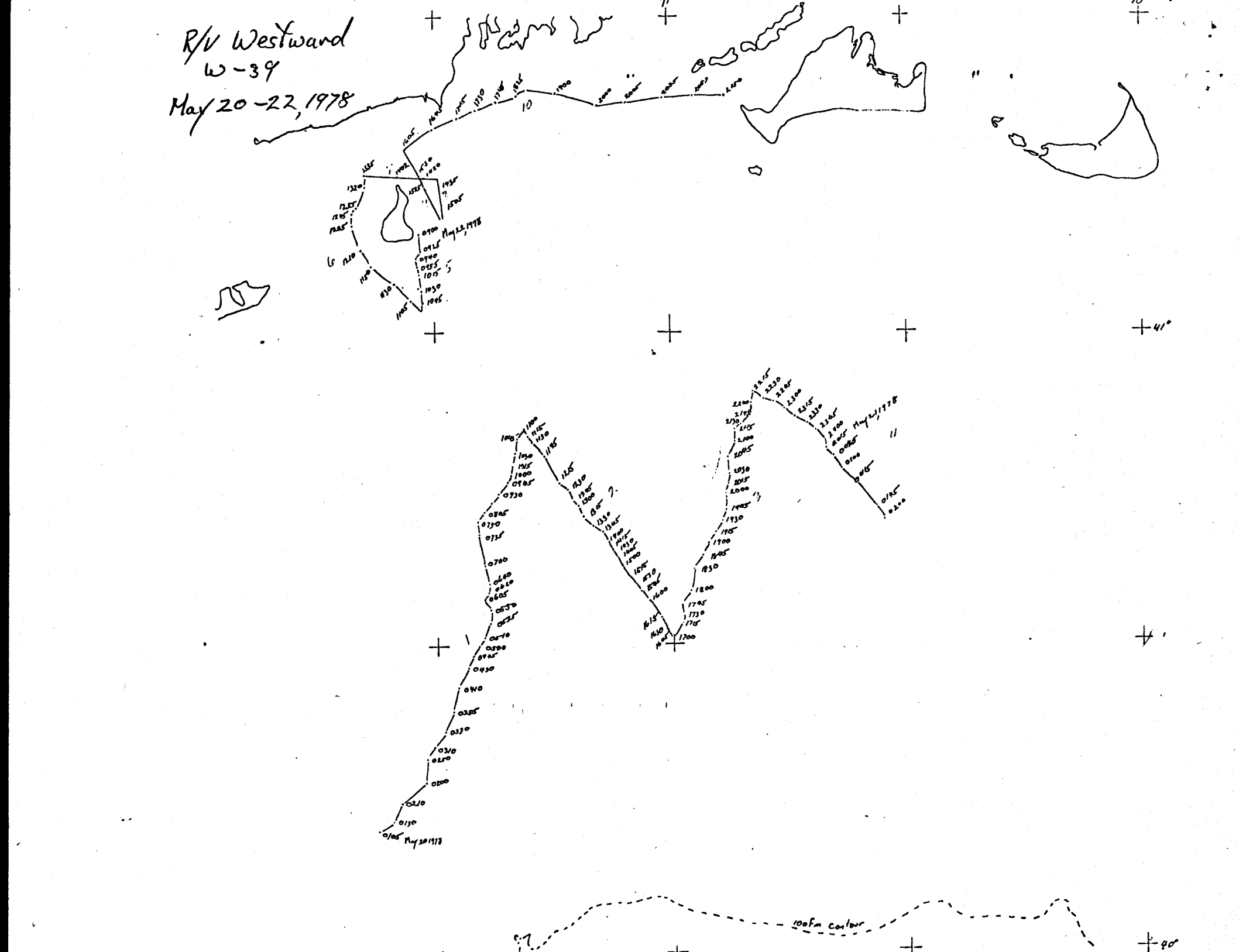
Off Block Island there were stringers in water depths greater than 20 fathoms and occasional boulder fields although featureless beds

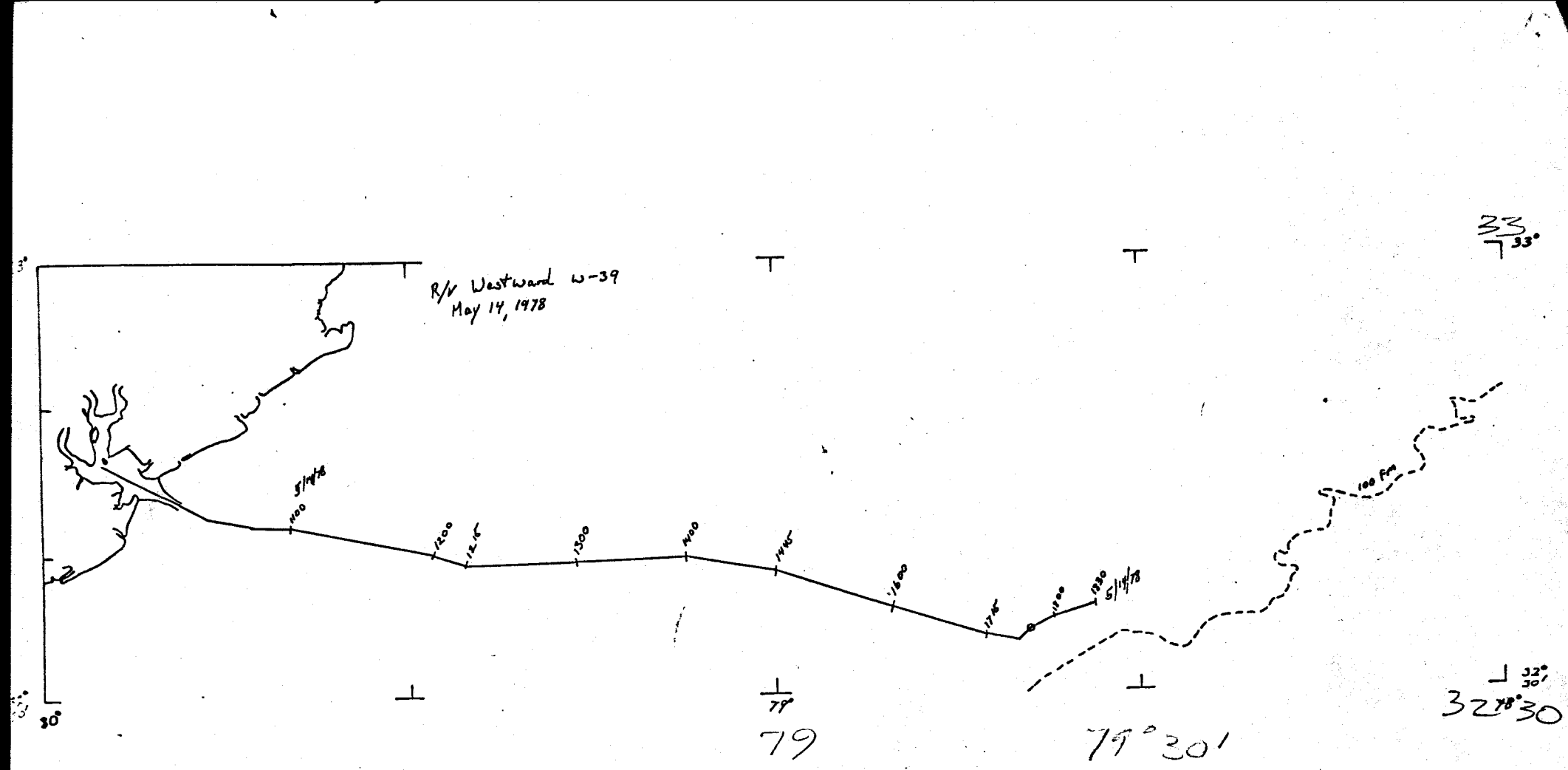
predominated. Between Point Judith and the Vineyard the record shows a generally plain bed with a few stringers and bouldered areas.

No clear subbottom reflectors were noted in the entire survey of the southern New England shelf. In part this reflects limitations of the profiling equipment although better records might have been obtained at slower speeds and with greater submergence of the transducer.

(d) The following abstract was submitted to GSA in early June as a product of preliminary data analysis from W-39 and a related cruise of R/V Cape Henlopen to the S. New England shelf "mud patch" under the leadership of David Twichell (U.S.G.S.) in mid-May 1978.

R/V Westward
W-39
May 20-22, 1978




R/V Westward W-39
May 14, 1978
5/14/78
1100
1200
1216
1300
1400
1445
1600
1736
1800
1930
5/14/78
100 FM
33°
32° 30'
30°
79°
79
79°30'
32°30